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SPECIAL ISSUE: LINKING VA AND NON-VA DATA TO ADDRESS US VETERAN HEALTH SERVICES ISSUES

Differences in Risk Scores of Veterans Receiving Community Care Purchased by the Veterans Health Administration

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Objective. To assess differences in risk (measured by expected costs associated with sociodemographic and clinical profiles) between Veterans receiving outpatient services through two community care (CC) programs: the Fee program (“Fee”) and the Veterans Choice Program (“Choice”).

Data Sources/Study Setting. Administrative data from VHA’s Corporate Data Warehouse in fiscal years (FY) 2014–2015.

Study Design. We compared the clinical characteristics of Veterans across three groups (Fee only, Choice only, and Fee & Choice). We classified Veterans into risk groups based on Nosos risk scores and examined the relationship between type of outpatient utilization and risk within each CC group. We also examined changes in utilization of VHA and CC in FY14–FY15. We used chi-square tests, t tests, and ANOVAs to identify significant differences between CC groups.

Principal Findings. Of the 1,400,977 Veterans using CC in FY15, 91.4 percent were Fee-only users, 4.4 percent Choice-only users, and 4.2 percent Fee & Choice users. Mean concurrent risk scores were higher for Fee only and Fee & Choice (1.9, SD = 2.7; 1.8, SD = 2.2) compared to Choice-only users (1.0, SD = 1.2) ($p < .0001$). Most CC users were “dual users” of both VHA and CC in FY14–FY15.

Conclusions. As care transitions from VHA to CC, VHA should consider how best to coordinate care with community providers to reduce duplication of efforts, improve handoffs, and achieve the best outcomes for Veterans.

Key Words. Veterans, risk score, purchased care, Veterans Choice Program, traditional fee basis

The Veterans Access, Choice and Accountability Act (“Choice Act”) was passed in August 2014 in direct response to an “access crisis” involving long waitlists and delays in care (Shulkin 2017; United States Congress House of Representatives 113th Congress 2nd Session 2014). The policy’s primary

intent was to ensure that Veterans had timely access to high-quality care through increased use of community providers paid for by the Veterans Health Administration (VHA). The Veterans Choice Program ("Choice"), part of the Choice Act, subsequently expanded the availability of community care (CC) for eligible Veterans by allowing VHA enrollees who have to wait longer than 30 days for care, live more than 40 miles from a VHA clinic, or experience hardship in accessing care from VHA, the option of seeking care from community providers paid for by VHA (United States Congress House of Representatives 113th Congress 2nd Session 2014). To ensure successful expansion of access to care, VHA established the Office of Community Care, which is tasked with developing community provider networks and promoting coordination of services between VHA and its CC provider networks.

The purchase of CC by VHA is not new, although it has evolved over time. VHA has long had authority to purchase hospital care and medical services based on geographic inaccessibility or VHA's lack of a required service (U.S. Government Publishing Office 2012). Since 1957, Veterans have been able to access care in the community through the "traditional Fee" program. This program uses individual purchased-care authorizations to provide specific services that VHA is unable to meet (e.g., a facility in the local network either is unable to provide the required service or there is a compelling reason why the Veteran needs to receive care from a community provider) (CMS Alliance to Modernize Healthcare (CAMH) 2015). Veterans can choose from a relatively small network of providers who are willing to accept VHA payments through a fee-for-service arrangement.

With the establishment of Choice in FY15, Veterans were provided with greater choice through a broader network of community providers.

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Community providers are reimbursed by VHA on a fee-for-service basis using average Medicare rates. Prior to April 2017, if a Veteran had other health insurance (e.g., Medicare or private insurance), VHA was the secondary payer of care through Choice. As of April 2017, VHA is considered the primary payer for Veterans using Choice.

Although initial uptake of the program was slow after its inception (Vaneman et al. 2017), the use of Choice has increased over time, particularly for specialty care (Rosen et al. 2017). From FY15 to FY16, the number of Choice appointments grew from just over one million to more than 5.6 million. Currently, approximately 23 percent of all CC appointments are delivered through Choice. Once considered a temporary program, Choice has become a fixture within VHA with strong support from top VHA leaders and others. More Veterans will likely opt to take advantage of community-based care in the future, with the passage of the VHA MISSION Act (S.2372) in May 2018 (House Committee on Veterans' Affairs 2018). This bill continues the Choice program for approximately one more year; after that time period, all VHA's CC programs will be consolidated into one CC program, making it easier for Veterans to navigate the system. It will also expand the circumstances under which Veterans can obtain CC (e.g., removing wait time and distance criteria). Further, it will allow Veterans to have access to care purchased by VHA if the services required by the Veteran are not offered by VHA, or if the health care provider and Veteran decide it is in the Veteran's best interest.

Despite Veterans' increased access to and use of CC, we have relatively little understanding of the clinical conditions of Veterans who use CC, the types of care they use, and the expected costs associated with their clinical care. Given VHA's expanding role as a purchaser of care, it is critically important that we understand this population to ensure that their current and future needs are met and to accurately predict future demands on VHA resources.

Thus, as a first step in understanding this population, we examined whether there were any differences in the sociodemographic characteristics, type of CC utilization, and clinical characteristics between Veterans receiving outpatient health care services through the traditional Fee program, Choice program, or both the Fee and Choice programs. We focused on outpatient care because a large proportion of care that Veterans received in CC to date is delivered in outpatient settings. We also examined whether there was an association between Veterans' risk (as measured by expected costs) across the three CC groups and the type of outpatient care received. We hypothesized that Veterans using Choice would have lower risk (i.e., lower

expected costs) than those using traditional Fee care because of differences in the eligibility criteria of the two programs (i.e., Choice improves access to care based on nonclinical reasons [i.e., distance and waiting time], whereas traditional Fee typically provides specialized services when they are clinically needed but unavailable at a Veteran's facility). Although we present results primarily from FY15 (the first year post-Choice), to understand how patterns in Veterans' utilization may have changed between FY14 (pre-Choice) and FY15 (post-Choice), we examined their utilization of VHA and purchased care through CC in both years.

METHODS

Conceptual Framework

Our study was guided by a conceptual model proposed by Petersen et al. (2010), which suggests that choice of a particular health care system is influenced by multiple factors, including individuals' demographic characteristics, their access to different health care systems, health status, and their perceptions of the health care system (Petersen et al. 2010). Enabling factors, such as travel distance, benefit coverage, wait time, and availability of the specific service needed, are key factors in determining whether a Veteran seeks CC or chooses to remain in VHA. A Veteran's specific medical conditions also play a determining role in decisions about where to obtain health care (Petersen et al. 2010; Wang et al. 2013). Thus, the expected clinical needs of the Veteran, and how quickly and efficiently VHA or the community can meet those needs through treatment, will be important in helping a Veteran decide whether to use VHA, CC, or both in obtaining care.

Study Design and Sample

This was a retrospective observational study using inpatient and outpatient administrative data obtained from VHA's Corporate Data Warehouse (CDW) (US Department of Veterans Affairs 2018). We obtained 2 years of VHA inpatient and outpatient data and 2 years of outpatient CC data. The data included 1 year of VHA and CC data post-Choice implementation (FY15) and 1 year of VHA and CC data pre-Choice implementation (FY14). Our cohort included all enrolled Veterans who were CC outpatient users in FY15 (i.e., they had claims that were paid by VHA during that time period).

Data Linkage

CC Data. The Fee and Fee Basis Claims System (FBCS) data in the CDW were used to determine Veterans' outpatient utilization of CC pre- and post-Choice. We used a variable from the FY15 Fee tables in the CDW (i.e., obligation number) that allows researchers to distinguish between CC provided by traditional Fee versus Choice. We then generated a comprehensive list of all outpatient utilization provided through both traditional Fee and Choice in the study period based on the "Category of Care" variable present in the FBCS data. This variable provides a description of the type of outpatient care used. To simplify this list, we categorized types of care into three major categories: primary care, mental health, and specialty care (which includes almost 60 different categories, such as cardiac surgery, dermatology, and endocrinology). We excluded some categories that did not fit into any of these categories (see Table S1).

VHA Data. We obtained VHA data from the CDW to determine our cohort's utilization of VHA providers pre- and post-Choice. To identify VHA outpatient care, we used VHA outpatient clinic codes (primary clinic stops); when a Veteran had more than one clinic stop on the same day, we counted this as a "visit day." We used the number of inpatient stays that each Veteran had to identify FY14 and FY15 VHA inpatient care. We also obtained demographic information on our cohort of Veterans who used CC in FY15 from the CDW. Sociodemographic variables included age, gender, race, marital status, and priority level (this indicates enrollment priority in VHA based on specific eligibility criteria that include severity of service-connected disabilities and income level); of the eight enrollment priority groups in VHA, Veterans in priority group 1 have the highest enrollment priority based on their service-connected disabilities and are exempt from copayments, whereas Veterans in the lowest-priority groups, groups 7–8, have required copayments for the care they receive (see footnote, Table 1).

We created a patient–treatment date–Choice flag level dataset. To generate a dataset of CC users, we first extracted CDW Fee data and linked that data to the FBCS tables, which was necessary in order to obtain the Category of Care variable. We then used patient identifiers (PatientSID, scrambled social security number, and social security number) to link the CC data with VHA data on enrollment status, Nosos risk scores (discussed below), geographic information (from the Planning Systems Support Group), and health insurance information.

Risk Score (Nosos). Risk adjustment is important in making informed clinical, administrative, and economic decisions. It has become increasingly valuable in considering the allocation of funds to providers, as it helps quantify patients' clinical needs and predict their expected resource use and costs accordingly (Management Decision and Research Center (MDRC) 1997). For this study, we used Nosos risk scores (*Nosos* is the Greek word for chronic disease), which were developed in VHA in order for researchers and managers to adjust for the sociodemographic and clinical characteristics of Veterans when determining their annual concurrent and/or prospective expected total VHA costs

Table 1: Characteristics of Purchased Care Users (FY15)*,†

	<i>Fee Only</i>	<i>Choice Only</i>	<i>Fee & Choice</i>
Npatients (row %)	1,280,285 (91.4)	61,959 (4.4)	58,733 (4.2)
Age, mean (SD)	60.6 (16.2)	61.3 (14.3)	60.7 (13.7)
Male, %	88.4	90.5	86.4
Marital status, <i>n</i> (column %)			
Married	656,254 (51.3)	35,211 (56.8)	32,138 (54.7)
Separated/divorced/widowed	436,060 (34.1)	19,688 (31.8)	20,231 (34.4)
Single	157,810 (12.3)	6,494 (10.5)	5,929 (10.1)
Unknown	30,161 (2.4)	566 (0.9)	435 (0.7)
Race, <i>n</i> (column %)			
White	906,128 (70.8)	47,240 (76.2)	44,683 (76.1)
Black	217,682 (17.0)	8,145 (13.1)	7,345 (12.5)
Other‡	44,268 (3.5)	1,870 (3.0)	2,289 (3.9)
Unknown	112,207 (8.8)	4,704 (7.6)	4,416 (7.5)
Enrollment priority,** <i>n</i> (column %)			
1–2	681,869 (53.3)	29,789 (48.1)	35,521 (60.5)
3	138,177 (10.8)	7,906 (12.8)	5,809 (9.9)
4–6	310,576 (24.3)	15,352 (24.8)	12,786 (21.8)
7–8	129,711 (10.1)	8,483 (13.7)	4,448 (7.6)
Unknown	19,952 (1.6)	429 (0.7)	169 (0.3)
Category of care used*** (<i>n</i>)			
Primary only	1,447 (0.1)	4,897 (7.9)	585 (1.0)
Specialty only	975,869 (76.2)	53,715 (86.7)	51,827 (88.2)
Mental Health only	11,135 (0.9)	548 (0.9)	337 (0.6)
Primary & Mental Health	7 (0.0)	38 (0.1)	41 (0.1)
Primary & Specialty	1,228 (0.1)	2,342 (3.8)	3,373 (6.4)
Mental Health & Specialty	10,267 (0.8)	293 (0.5)	1,809 (3.1)
Primary & Mental Health & Specialty	25 (0.0)	37 (0.1)	195 (0.3)
Nosos score			
Concurrent score, mean (SD)	1.9 (2.7)	1.0 (1.2)	1.8 (2.2)
Concurrent score, median	0.8	0.6	1.1
Prospective score, mean (SD)	1.5 (1.3)	1.1 (0.7)	1.6 (1.2)
Prospective score, median	1.1	0.9	1.3

continued

Table 1. *Continued*

Notes: Total sample size is 1,400,977 patients.

*Differences between columns were significant at $p < .0001$. ANOVA was used for age, Kruskal-Wallis for Nosos medians, Chi-square for all others.

†There are 20 patients with missing gender; 13,482 patients missing Nosos scores.

*Other race includes American Indian or Alaska Native; Asian; Native Hawaiian or Other Pacific Islander.

****Priority Group 1:** Veterans with VHA-rated service-connected disabilities 50% or more disabling; Veterans determined by VHA to be unemployable due to service-connected conditions;

Priority Group 2: Veterans with VHA-rated service-connected disabilities 30% or 40% disabling; **Priority Group 3:** Veterans who are Former Prisoners of War (POWs); Veterans awarded a Purple Heart medal; Veterans whose discharge was for a disability that was incurred or aggravated in the line of duty; Veterans with VHA-rated service-connected disabilities 10% or 20% disabling; Veterans awarded "benefits for individuals disabled by treatment or vocational rehabilitation;" Veterans awarded the Medal Of Honor (MOH); **Priority Group 4:** Veterans who receive aid and attendance or housebound benefits from VHA; Veterans who are considered "catastrophically disabled" by VHA; **Priority Group 5:** Non-service-connected Veterans and noncompensable service-connected Veterans rated 0% disabled by VHA with annual income below VHA's; Veterans receiving VHA pension benefits; Veterans eligible for Medicaid programs; **Priority Group 6:** Compensable 0% service-connected Veterans; Veterans exposed to Ionizing Radiation during atmospheric testing or during the occupation of Hiroshima and Nagasaki; Project 112/SHAD participants; Veterans who served in Vietnam; Veterans of the Persian Gulf War; Veterans who served on active duty at Camp Lejeune for at least 30 days; **Priority Group 7:** Veterans with gross household income below the geographically-adjusted income limits for their resident location and who agree to pay copays; **Priority Group 8:** Veterans with gross household income above the VA and the geographically-adjusted income limits for their resident location and who agree to pay copays (U.S. Department of Veterans Affairs 2017.)

***Excludes 268,685 patients with non-medical or missing categories of care.

(Wagner et al. 2016a,c). The Nosos risk model expands on the Centers for Medicare and Medicaid Services (CMS) risk adjustment model, designed to adjust capitated payments for Medicare Advantage plans. In addition to age and gender, the model includes ICD-9-CM or ICD-10 diagnosis codes that are grouped into condition categories and then into hierarchies. There are 87 Hierarchical Condition Categories (HCCs) in the final model. To improve the fit of the CMS model in capturing the expected costs of the VHA population, VHA-specific variables were added to the model: pharmacy data (25 drug class categories), demographic data (race, marital status, lack of health insurance, registry information [data on Veterans with specific conditions or characteristics that require special treatment, such as hepatitis C or homelessness], and priority level), and 46 psychiatric condition categories from the Psychiatric Case Mix System (PsyCMS). The PsyCMS was developed specifically for VHA patients with mental health and substance abuse (MH/SA) conditions to predict their concurrent and prospective health care costs and utilization (Sloan et al. 2006; Wagner et al. 2016b).

Nosos scores are computed by regressing each Veteran's total costs (which include VHA inpatient, outpatient, and pharmacy costs, along with

paid claims for CC) on the independent variables described above. Total expected costs for each Veteran are the predictions from this model. Expected costs are then rescaled so that the mean Nosos score for the population in a given fiscal year equals 1.0. Therefore, a Nosos score of 1.9 indicates that the Veteran is 90 percent more expensive compared to the average risk score in the VHA population, whereas a Nosos score of 0.5 indicates that the Veteran is 50 percent less expensive compared to the average risk score in the VHA population. We calculated both concurrent and prospective Nosos risk scores. Concurrent risk models (Wagner et al. 2016c) use current-year diagnoses to estimate current costs, while prospective models use current-year diagnoses to estimate next year's costs.

Analyses

Descriptive analyses were conducted at the patient level. We first identified our cohort of Veterans, which included any Veterans who used outpatient CC in FY15 and who had claims paid by VHA (as noted earlier). We then categorized our cohort into groups based on the type of CC they used: (1) exclusive traditional Fee ("Fee") users; (2) exclusive "Choice" users; and (3) both traditional Fee and Choice ("Fee & Choice") users. Next, we compared the sociodemographic characteristics, type of CC outpatient utilization, and clinical characteristics (i.e., means, medians, and distribution of Nosos risk scores) across all three CC groups. To describe clinical profiles in greater detail, we examined the top 10 HCCs and PsyCMS categories in each of the three CC groups.

We also examined patterns in Veterans' utilization of VHA and CC in the pre- and post-Choice periods (FY14 and FY15) and assessed whether changes in utilization during this time period were associated with changes in Nosos risk scores. We used chi-square tests for categorical variables, and t tests and analyses of variance (ANOVAs) for continuous variables, to determine whether characteristics differed between groups.

Our study was deemed quality improvement and exempt from Institutional Review Board review. All analyses were conducted using SAS version 9.4 (SAS Institute Inc., Cary, NC, USA).

RESULTS

Our study cohort included a total of 1,400,977 Veterans who used CC paid for by VHA during FY15 (10/01/14-9/30/15). Among these, 91.4 percent

represented exclusive Fee users, 4.4 percent exclusive Choice users, and 4.2 percent Fee & Choice users (see Figure 1).

Table 1 shows differences between the three CC groups with respect to sociodemographic characteristics, type of CC utilization, and Nosos risk scores. There were only slight differences between groups in sociodemographic characteristics. For example, Fee & Choice users were more likely to be enrolled in the highest priority groups (e.g., groups 1 and 2, which include Veterans with the highest service-connected disabilities) compared to exclusive Fee and exclusive Choice users (61 percent, 53 percent and 48 percent, respectively) ($p < .0001$).

There were also some differences in type of CC utilization between groups. Specialty care was used most frequently across all CC groups, with a range from 76 percent to 88 percent. Primary care, on the other hand, was used much less often, except among exclusive Choice users (7.9 percent, $n = 4,897$), and when used, it was in combination with specialty care (3.8 percent and 6.4 percent, Choice-only and Fee & Choice users, respectively). Mental health care was also used infrequently, although among Fee-only users, the relatively low percentages of Veterans using mental health only or both mental health and specialty care represented over 10,000 users in each category (all $p < .0001$).

Because specialty care encompassed many diverse services, we explored the top specialty categories in each of the groups. Fee-only and Fee & Choice users were more likely to use specialty care for nursing intensive care services, such as homemaker/home health aid services, whereas Choice-only users were more likely to use CC specialty care for medical specialty services, such as physical therapy and chiropractic care (see Table S2a). We subsequently learned that nursing intensive care (NIC) service codes are often used inappropriately, particularly for Fee-only users, and as a result may not reflect actual services received (Office of Community Care April 2018). We

Figure 1: Cohort Creation from FY15 Community Care (CC) Claims

subsequently eliminated the NIC codes in a sensitivity analysis. With these codes removed, both the Fee-only and Fee & Choice users appeared similar to the Choice-only users in their use of medical specialty services. However, a higher percentage of Choice-only users was still represented in the top specialty care categories (see Table S2b).

Table 1 also shows differences in Nosos risk scores between groups. Mean concurrent Nosos risk scores were highest for Veterans using Fee only (1.9, SD = 2.7), second highest for the Fee & Choice group (1.8, SD = 2.2), and lowest (by far) for the Choice-only group (1.0, SD = 1.2). Mean prospective Nosos risk scores followed similar patterns (all $p < .0001$ for tests of differences in means). We also calculated median risk scores for each of the groups since they are less sensitive to extreme values. As expected, median scores were smaller and much closer between the three groups, suggesting that the difference in means was driven by more high-cost cases in the Fee and Fee & Choice groups.

To further investigate the distribution of Veterans' Nosos risk scores in each of the three CC groups, we categorized our cohort into four risk groups based on concurrent Nosos scores and examined their association with CC groups and type of outpatient CC. We defined the lowest-risk group as those with scores <1.0 (i.e., less than the average risk score in the VHA population); this included about 53 percent of Veterans using CC. In general, regardless of type of outpatient CC used (with the exception of primary care), the distribution of risk followed similar patterns as in Table 1 (see Table 2). Choice-only users had the highest percentage of Veterans (71.1 percent) in the lowest-risk group and the lowest percent (10.7 percent) in the two highest-risk groups, while the Fee-only and Fee & Choice groups each had about 50 percent in the lowest-risk group and approximately 27 percent in the two highest-risk groups.

We examined the 10 most prevalent HCCs and PsyCMS categories in each of the three groups and ranked them based on their position within the top 10 HCCs (or PsyCMS categories) in any of the groups (see Table S3). Although their order differed slightly, depending on type of CC, the highest ranked HCCs across groups included the following: diabetes without complication; chronic obstructive pulmonary disease (COPD); major depressive, bipolar, and paranoid disorders; and diabetes with chronic complications. The Fee & Choice group had the highest prevalence of HCCs of all groups.

Rankings of the top PsyCMS categories (PCCs) were also comparable between groups. The highest ranked groups included the following: post-traumatic stress disorder (PTSD), nicotine dependence, and depression not otherwise specified/not elsewhere classified (NOS/NEC).

Table 2: Concurrent Nosos Risk Groups by Category of Care & Purchased Care Use (FY15)*

		Nosos Risk Groups					
		0 to < 1	1 to < 2	2 to < 5	5+		Total
Number of patients (row %)		590,872 (52.9)	228,732 (20.5)	190,280 (17.0)	107,170 (9.6)		1,117,054 (100.0)
Category of care	Program	Row percent of patients in risk group [†]				p-Value**	
All	Fee only	52.1	20.3	17.4	10.2	<.0001	9,98,115
	Choice only	71.1	18.2	9.0	1.7	<.0001	60,428
	Fee & Choice	47.8	25.2	19.5	7.5	<.0001	58,511
Primary only	Fee only	89.3	7.5	2.3	0.9	.0059	1,365
	Choice only	84.0	11.2	4.2	0.6	<.0001	4,202
	Fee & Choice	73.1	14.8	9.4	2.6	<.0001	573
Mental Health only	Fee only	57.8	22.4	13.8	6.0	<.000	11,117
	Choice only	75.6	18.4	4.9	1.1	<.0001	532
	Fee & Choice	60.2	23.7	13.4	2.7	.0667	337
Specialty only	Fee only	52.1	20.3	17.4	10.2	<.0001	974,126
	Choice only	69.9	18.8	9.5	1.8	<.0001	53,134
	Fee & Choice	47.0	25.2	19.9	7.9	<.0001	51,797
Primary & Mental Health	Fee only	42.9	28.6	14.3	14.3	.0937	7
	Choice only	78.8	18.2	3.0		<.0001	33
	Fee & Choice	65.9	26.8	4.9	2.4	<.0001	41
Primary & Specialty	Fee only	67.3	14.3	12.1	6.4	<.0001	1,211
	Choice only	76.6	17.0	5.8	0.6	<.0001	2,200
	Fee & Choice	57.3	22.8	15.3	4.6	<.0001	3,761
Mental Health & Specialty	Fee only	37.9	28.1	23.0	10.9	<.0001	10,264
	Choice only	58.1	25.4	12.0	4.5	<.0001	291
	Fee & Choice	40.0	32.3	20.1	7.6	<.0001	1,808
Primary & Mental Health & Specialty	Fee only	56.0	20.0	16.0	8.0	.0665	25
	Choice only	69.4	19.4	11.1		.0221	36
	Fee & Choice	47.4	35.1	13.4	4.1	.0054	194

Note: Omits 283,923 patients with either “Other” category of care or missing Nosos scores.
 *Nosos scores were missing in 11,976 Fee-only users, 1,448 Choice-only users, and 58 Fee & Choice users.
 †Blank cells indicate combinations with no patients.
 ***p*-Values represent Chi-square test. Fee-only row compares Fee only with Choice Only. Choice-only row compares Choice only with Fee & Choice. Fee & Choice row compares Fee & Choice with Fee only.

As with the HCCs, Veterans using both Fee & Choice had the highest prevalence of PsyCMS groups compared to the others (all *p* < .0001 between CC groups).

We examined Veterans’ utilization of VHA and CC during the pre- and post-Choice periods as well as changes in risk scores across groups. As shown

in Table 3, among our cohort of CC FY15 users, the vast majority used both VHA and CC for care (i.e., dual users); 84 percent to 94 percent used VHA for outpatient care in FY14 and about 99 percent used VHA for outpatient care in FY15. Veterans who used Fee in FY14 had substantially more inpatient and outpatient VHA utilization (and more outpatient CC utilization) in both years than those who did not use Fee in FY14. Choice-only users (particularly those who did not use Fee in FY14) had the lowest mean number of outpatient visit days in VHA in FY14 and FY15 (16.0 and 21.8, respectively) of all groups; median number of days was also lowest for this group. Their outpatient CC utilization was also low during this time period. Some Veterans also used VHA inpatient care; in FY14 and FY15, the percentage of patients with a VHA admission ranged from 4.8 percent to 18.0 percent, and from 5.7

Table 3: VHA Utilization and Nosos Scores among FY15 CC Users

	<i>Fee Only FY15</i>		<i>Choice Only FY15</i>		<i>Fee & Choice FY15</i>	
	<i>Fee FY14</i>	<i>No Fee FY14</i>	<i>Fee FY14</i>	<i>No Fee FY14</i>	<i>Fee FY14</i>	<i>No Fee FY14</i>
Number of patients	547,125	733,160	15,321	46,638	34,160	24,573
% of pts with VHA admission in 2014	18.0%	7.4%	11.1%	4.8%	13.5%	7.2%
% of pts with VHA admission in 2015	17.6%	13.6%	7.1%	5.7%	12.9%	12.8%
% of pts with any VHA OP visits in 2014*	99.4%	83.5%	99.8%	90.3%	99.9%	93.5%
% of pts with any VHA OP visits in 2015	99.5%	98.1%	99.9%	99.3%	100.0%	100.0%
Mean VHA OP visit days in 2014	36.6	17.3	29.0	16.0	39.1	21.8
Mean VHA OP visit days in 2015	37.6	26.6	28.7	21.8	45.3	36.4
Mean CC OP visit days in 2014	21.0	N/A	3.9	N/A	13.1	N/A
Mean CC OP visit days in 2015	24.1	6.4	2.6	2.5	19.8	9.5
Mean Nosos score in 2014	1.7	1.2	1.3	1.0	1.7	1.2
Mean Nosos score in 2015	1.8	1.3	1.3	1.0	1.8	1.4
Median VA OP visit days in 2014	28.0	11.0	23.0	11.0	32.0	16.0
Median VA OP visit days in 2015	29.0	19.0	23.0	17.0	39.0	31.0

*VHA OP visit days reflects only VHA clinic stops that occur in 1 day (it does not include any outpatient community care).

percent to 17.6 percent, respectively, across all CC groups. Choice users in FY15 had almost as high or higher VHA outpatient utilization than they had in FY14. Only Choice users who used Fee in FY14 had noticeably lower inpatient utilization in FY15 than in FY14.

For most CC groups, Nosos scores were slightly higher in FY15 than in FY14 (overall, 1.5 vs. 1.4); this may account for the higher outpatient utilization. Across the groups, mean Nosos risk scores were consistent with earlier results; Fee-only and Fee & Choice users had the highest mean Nosos scores in both years (particularly those who used CC in FY14), whereas Choice-only users had relatively lower scores.

DISCUSSION

Our study has several key findings that have implications for VHA as CC continues to grow and change. Across all groups, use of CC was greater for those in VHA low-priority groups, suggesting that Veterans with more service-connected disabilities (i.e., benefit coverage) were likely to remain in VHA for care. We also found that a greater portion of Veterans used specialty care through community providers compared to primary care and mental health. This may reflect relative resource adequacy in VHA versus the community and/or Veterans' preferences about where to access care. Additional research is needed to better understand why Veterans choose to receive health care through CC rather than VHA.

As hypothesized, exclusive Choice users had the lowest risk of all CC groups; about 90 percent of this group had Nosos risk scores <2.0, compared to approximately 72 percent of the other groups. Choice-only users were also more likely to use specialty care services provided by community providers than the other groups. Similar patterns were observed in the distribution of Nosos risk scores by CC groups and type of outpatient utilization, suggesting that differences in mean Nosos risk scores were largely driven by the skewed distribution of high-cost Veterans in the Fee-only and Fee & Choice groups. While these results are not surprising, with the recent passage of the VHA MISSION Act, understanding why CC is used in lieu of VHA by Veterans with different risk profiles will continue to remain of utmost importance.

Our findings suggest that VHA continued to remain a primary source of health care services for Veterans, despite increased access to CC in FY15. Approximately 99 percent of CC users in FY15 used VHA outpatient care,

and a smaller proportion used VHA inpatient care. The use of VHA outpatient care increased from FY14 to FY15 among all three CC groups, which might be reflected in the slight increase seen in Nosos risk scores from FY14 to FY15 (for the Fee-only and Fee & Choice groups). The use of the Choice program also increased in FY15. In FY15, there were 1,114 Choice-only users in Quarter 1; this increased to 73,368 Choice-only users in Quarter 4. Because FY15 was a transitional year, with introduction of Choice as a new CC program, we cannot assume that these same utilization trends will persist beyond FY15. Future studies should examine how the use of CC impacts reliance on VHA for care.

We found that linking VHA and CC data is feasible and useful; it enabled us to understand who is using purchased care and for what type of care. We were able to identify Veterans who used CC and the type of service(s) they used, and link that information with Veterans' sociodemographic and clinical data obtained from other VHA files. Linking these different data sources also allowed us to address, as well as raise, important questions for VHA related to the risk and clinical needs of Veterans who use CC for outpatient care. Although exclusive Choice users were comparable to the average risk in the VHA population, when the three CC groups are consolidated into one CC program, paying for the expected costs of patients using CC may become problematic. Since VHA currently reimburses CC providers using average Medicare rates, these payments may not be adequate for treating patients who are sicker than expected or who have multiple comorbidities, such as mental health and substance use disorders.

This study makes an important contribution to the literature and has several strengths worth noting. Most of the recent studies on Choice have focused on Veterans' and providers' experiences and perceptions of the program, or provided limited snapshots of Choice in one region or subgroup of Veterans (Mattocks and Yehia 2017). Ours is the first paper to evaluate Choice using a national sample of Veterans, and to examine clinical profiles and the relative expected costs of Veterans using CC. We also provide important information on VHA and CC data linkages, and some of the challenges that other researchers might face in conducting similar analyses (see the next paragraph). Although we present data only from the first year post-Choice, our findings, as well as their implications, may be very relevant with continued expansion of CC.

There were also some limitations. We were limited in capturing a complete picture of VHA and CC health care utilization because of our inability to link payment authorizations for Veterans eligible for health care through

purchased care with the actual claims themselves. Thus, we had to use data only associated with completed appointments. Beginning in FY18, a unique patient identification number became available for purchased care that will provide complete linkage from a care request through completion of an appointment (including total cost). This will allow for more thorough analyses of the complete care process.

The reliability of the Category of Care variable is currently unknown. Further, Category of Care was missing in about 20 percent of claims for traditional Fee and about 0.5 percent of Choice claims. Our evaluation included only those Veterans using CC who had their claims paid for by VHA. This eliminated Choice users whose CC was paid for through their own insurance. We also included only those Veterans enrolled in VHA and, more specifically, those who used CC in FY15. Finally, we lacked data on health care utilization through public (Medicare, Medicaid) and private insurance coverage, which may have underestimated risk in the calculation of Nosos risk scores.

As expansion of CC continues, it will be incumbent upon VHA to keep pace with the clinical needs of those Veterans using these programs. As more care transitions from VHA to the private sector, VHA should consider how best to coordinate care with community providers in order to reduce duplication of efforts, improve handoffs, and achieve the best health care outcomes for Veterans.

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SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section at the end of the article.

Appendix SA1: Author Matrix.

Table S1: Mapping of Raw Category of Care into Groups.

Table S2: a. Top 10 Most Prevalent Specialty Categories of Care Claims Incurred in FY15 by CC Utilization Group. b. Top 10 Most Prevalent Specialty Categories of Care Claims Incurred in FY15 by CC Utilization Group.

Table S3: Most Prevalent CMS Hierarchical Condition Categories (HCCs) and PsyCMS Condition Categories (PCCs) among Purchased Care Users (FY15)*†